

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1 – 26 (cancelled).

Claim 27 (previously presented): A method which may be used for producing a synthesis gas containing hydrogen and carbon monoxide, said method comprising:

- a) pre-reforming a hydrocarbon mixture to obtain a first mixture;
- b) reforming said first mixture with an oxidizing mixture to obtain a raw synthesis gas, wherein:
 - 1) said oxidizing mixture comprises oxygen and is heated, prior to said reforming, to a temperature of about 1000° C;
 - 2) said raw synthesis gas comprises:
 - i) hydrogen;
 - ii) carbon monoxide;
 - iii) carbon dioxide;
 - iv) water; and
 - v) an oxygen-depleted mixture; and
 - 3) said reforming is performed in a catalytic ceramic membrane reactor (RCMC).

Claim 28 (cancelled):

Claim 29 (previously presented): The method of claim 27, wherein said first mixture is brought to a temperature, prior to said reforming, at least about 111° C lower than said temperature of said oxidizing mixture.

Claim 30 (previously presented): The method of 27, further comprising desulfurizing said hydrocarbon mixture prior to said pre-reforming.

Claim 31 (previously presented): The method of claim 30, wherein said hydrocarbon mixture is desulfurized at a temperature between about 250° C and about 450° C.

Claim 32 (previously presented): The method of claim 31, further comprising adding hydrogen to said hydrocarbon mixture prior to said desulfurization.

Claim 33 (previously presented): The method of claim 31, wherein said temperature of said hydrocarbon mixture is about 400° C.

Claim 34 (previously presented): The method of claim 27, wherein said pre-reforming is performed in a catalytic reactor at a temperature between about 450° C and about 550° C.

Claim 35 (previously presented): The method of claim 34, wherein catalytic reactor is an adiabatic type catalytic reactor.

Claim 36 (previously presented): The method of 34, wherein said hydrocarbon mixture is preheated, prior to said pre-reforming, to a temperature of about 500° C.

Claim 37 (previously presented): The method of claim 27, wherein the temperature of said oxygen-depleted mixture is lower than said temperature of said oxidizing mixture.

Claim 38 (previously presented): The method of claim 37, wherein the difference between said temperature of said oxygen-depleted mixture and said temperature of said oxidizing mixture is at least about 75° C.

Claim 39 (previously presented): The method of claim 27, wherein the temperature of said first mixture is between about 550° C and about 670° C.

Claim 40 (previously presented): The method of claim 39, wherein said temperature of said first mixture is about 650° C.

Claim 41 (previously presented): The method of claim 27, wherein:

- a) said raw synthesis gas is at a temperature between about 800° C and about 1100° C; and
- b) the temperature of said oxygen-depleted mixture is lower than said temperature of said synthesis gas.

Claim 42 (previously presented): The method of claim 27, further comprising:

- a) cooling said raw synthesis gas; and
- b) separating said raw synthesis gas.

Claim 43 (previously presented): The method of claim 42, further comprising purifying said raw synthesis gas.

Claim 44 (previously presented): The method of claim 42, further comprising treating said raw synthesis gas.

Claim 45 (previously presented): The method of claim 27, wherein:

- a) said oxidizing mixture is obtained through the treatment of a first oxygenated gas mixture; and
- b) said first oxygenated gas mixture comprises between about 10 molar % and about 50 molar % of oxygen.

Claim 46 - 61 (cancelled):